WHAT IS CLAIMED IS:

1.   A turbine bucket including a bucket airfoil having an airfoil shape, said airfoil having a nominal profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values from 0.05 span to 0.95 span convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each distance Z, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape.

2.   A turbine bucket according to Claim 1 forming part of a first stage of a turbine.

3.   A turbine bucket according to Claim 1 wherein said airfoil shape lies in an envelope within ±0.150 inches in a direction normal to any airfoil surface location.

4.   A turbine bucket according to Claim 1 including a platform, the height of the turbine airfoil from a root at a midpoint of the platform to a tip of the airfoil being 7.075 inches.

5.   A turbine bucket including a bucket airfoil having an uncoated nominal airfoil profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values from 0.05 span to 0.95 span

37

convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each Z distance, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape, the X and Y distances being scalable as a function of the same constant or number to provide a scaled-up or scaled-down airfoil.

6. A turbine bucket according to Claim 5 wherein the Z distance, when converted to inches, is scalable as a function of said same constant or number.

7. A turbine bucket according to Claim 5 forming part of a first stage of a turbine.

8. A turbine bucket according to Claim 5 wherein said airfoil shape lies in an envelope within ±0.150 inches in a direction normal to any airfoil surface location.

9. A turbine bucket according to Claim 5 including a platform, the height of the turbine airfoil from a root at a midpoint of the platform to a tip of the airfoil being 7.075 inches.

10. A turbine comprising a turbine wheel having a plurality of buckets, each of said buckets including an airfoil having an airfoil shape, said airfoil having a nominal profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values,

from 0.05 span to 0.95 span convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define the airfoil profile sections at each distance Z, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape.

11.   A turbine according to Claim 10 wherein the turbine wheel comprises a first stage of the turbine.

12.   A turbine according to Claim 10 wherein the turbine wheel mounts 92 buckets and X represents a distance parallel to the turbine axis of rotation.

13.   A turbine according to Claim 10 including a platform, the height of the turbine airfoil from a root at a midpoint of the platform to a tip of the airfoil being 7.075 inches.

14.   A turbine according to Claim 10 including a platform for said buckets, the radial height between an axial centerline of said turbine wheel and a root of each airfoil at a midpoint of the platform thereof being 32.348 inches.

15.   A turbine according to Claim 14 wherein the height of the turbine airfoil from the root at the midpoint of the platform to a tip of the airfoil being 7.075 inches.

16. A turbine comprising a turbine wheel having a plurality of buckets, each of said buckets including an airfoil having an uncoated nominal airfoil profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values from 0.05 span to 0.95 span convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each distance Z, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape, the X, Y and Z distances being scalable as a function of the same constant or number to provide a scaled-up or scaled-down bucket airfoil.

17. A turbine according to Claim 16 wherein the turbine wheel comprises a first stage of the turbine.

18. A turbine according to Claim 16 wherein the turbine wheel mounts 92 buckets and X represents a distance parallel to the turbine axis of rotation.

19. A turbine according to Claim 16 including platforms for each of said buckets, the height of the turbine airfoil from a root at a midpoint of the platform to a tip of the airfoil being 7.075 inches.

20. A turbine according to Claim 16 including platforms for each of said buckets, the radial height between an axial centerline of said turbine wheel and a

root of each bucket at a midpoint of the platform thereof being 32.348 inches.

21. A turbine according to Claim 20 wherein the height of the turbine airfoil from the root at the midpoint of the platform to a tip of the airfoil being 7.075 inches.

22. A turbine according to Claim 16 wherein said airfoil shape lies in an envelope within ±0.150 inches in a direction normal to any airfoil surface location.